



# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCT2145KGsto		<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. PCT/EP2004/008957		International filing date (day/month/year) 10.08.2004		Priority date (day/month/year) 13.08.2003
International Patent Classification (IPC) or national classification and IPC B01J23/89, C07C5/32, C10G45/00				
Applicant HALDOR TOPSOE AS				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 1 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand  07.03.2005		Date of completion of this report  15.11.2005		
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer  Deurinck, P  Telephone No. +31 70 340-2404  		

INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITYInternational application No.  
PCT/EP2004/008957**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1-13 as originally filed

**Claims, Numbers**

1, 2 received on 08.03.2005 with letter of 08.03.2005

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/008957

---

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

---

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1,2
Inventive step (IS)	Yes: Claims	
	No: Claims	1,2
Industrial applicability (IA)	Yes: Claims	1,2
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

Reference is made to the following documents:

D2: WO 01/68571  
D3: GB 2 353 734  
D6: GB 1 160 872

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1.

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent **Claim 1** is not new in the sense of Article 33(2) PCT.

Document D6 discloses a catalyst that can be used as a dehydrogenation catalyst in chemical and electrochemical processes. The catalyst comprises a support having provided thereon a catalytic nickel component. At least a part of the catalytic surface can be covered with a promoter which may be silver (claims 1, 4, 5 and 7; page 2, line 20 - page 3, line 86).

The Examining Division admits that the ratio promoter/nickel is not mentioned in D6. However, since the present application and D6 both obtain the same result using a supported catalyst comprising nickel and silver, it is likely that at least some of the used catalysts have a ratio promoter/nickel falling within the ambit of the presently claimed ratio.

Similar novelty objections can be made based on documents D2 (claims 1, 2 and 9) and D3 (claims 1, 22, 28-30).

Documents D2 and D3 disclose a catalyst which comprises two components selected from two different lists. However, the list comprising silver or gold is short:

- document D2: "*at least a transition metal selected from the group consisting of copper, silver and gold*" (see D2: claim 9); and
- document D3: "*M is selected from germanium, tin, silver and gold*" (see D3: claim 30).

Therefore, this selection does not confer novelty with respect to the disclosure of documents

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/EP2004/008957

D2 and D3.

2.

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of dependent **Claim 2** is not new in the sense of Article 33(2) PCT.

Document D6 discloses a catalyst wherein the support is alumina (see D6: page 2, lines 86-119).

Similar novelty objections can be made based on documents D2 (page 6, lines 10-31) and D3 (page 4, lines 11-16).

IAP9 Rec'd PCT/PTO 06 FEB 2006

PCT/EP2004/008957  
HALDOR TOPSOE A/S  
PCT2145KG057  
07.03.2005

**NEW CLAIMS 1 AND 2**

1. Catalytic process for the dehydrogenation of an organic compound comprising contacting the organic compound under dehydrogenation conditions with a supported catalyst consisting of nickel as the active catalytic component promoted with silver or gold, the silver or gold being present in an amount between 0.001% and 30% by weight calculated on the amount of nickel in the catalyst.
2. The process of claim 1, wherein the support is alumina, titania or a magnesium aluminium spinel.